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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,312	01/02/2004	Joseph J. Schottler	P06708US0-6025	2007
34082	7590	01/25/2006	EXAMINER	
ZARLEY LAW FIRM P.L.C. CAPITAL SQUARE 400 LOCUST, SUITE 200 DES MOINES, IA 50309-2350				CHANG, SUNRAY
			ART UNIT	PAPER NUMBER
			2121	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/751,312	SCHOTTLER ET AL.	
	Examiner	Art Unit	
	Sunray Chang	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 02 January 2004.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-9 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 January 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>20040424</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

1. Claims 1 – 9 are presented for examination.

Claims 1 – 9 are rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1 – 9 are rejected** under 35 U.S.C. 102(b) as being anticipated by Joseph F. McCormick (U.S. Patent No. 5,012,722, and referred to as **McCormick** hereinafter).

Regarding independent claim 1, 8 and 9, McCormick teaches,

- A method of driving the coil of an electrohydraulic valve with a PWM drive, comprising:
 - Transmitting a feedback signal to a digitizing device that is electrically connected to the electrohydraulic valve;
 - Sampling the feedback signal within the digitizing device to create a plurality of signal samples;
 - Transmitting the plurality of samples to an accumulator;
 - Averaging the plurality of samples within the accumulator to create an average value; and
 - Transmitting the average value to a closed loop control algorithm that generates a pulse width signal to drive the coil of the electrohydraulic valve.

Regarding dependent claims 2 – 4,

- The digitizing device is an A/D converter, a DSP or a micro controller.

Regarding dependent claims 7,

- The accumulatoe resets when the algorithm sends the pulse width signal to the coil of the electrohydraulic valve. [can be accordingly adjusted approximately once every 1 ms, Col. 7, Lines 58 – 60]

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 5 and 6 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **McCormick**, and in view of Wikipedia (the free encyclopedia http://en.wikipedia.org/wiki/PID_controller, and referred to as **Wikipedia** hereinafter).
(**McCormick** as set forth above generally discloses the basic inventions.)

Regarding dependent claims 5 and 6,

McCormick teaches algorithms [formula relationships or look up data tables, Col. 7, Lines 47 – 61].

McCormick does not teach PID or PI.

Wikipedia teaches PID [PID controller, mathematically, control algorithms, Page 1, Paragraph 1], for the purpose of adjusting process inputs based on the history and rate of change of the error signal, which gives more accurate and stable control. [Page 1, Paragraph 1]

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of **McCormick** to include the teach of **Wikipedia** , “PID”, for the purpose of adjusting process inputs based on the history and rate of change of the error signal, which gives more accurate and stable control.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Balestri et al. (U.S. Patent No. 5,398,286) discloses a system for enhancing an analog

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signal by eliminating undesired portions of a detected signal, feedback, compensation. Chaplin et al. (U.S. Patent No. 4,490,841) discloses a method and apparatus for canceling vibrations.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang whose telephone number is (571) 272-3682. The examiner can normally be reached on M-F 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-746-3506.

Sunray Chang
Patent Examiner
Group Art Unit 2121
Technology Center 2100
U.S. Patent and Trademark Office

January 16, 2006



Anthony Knight
Supervisory Patent Examiner
Group 3600